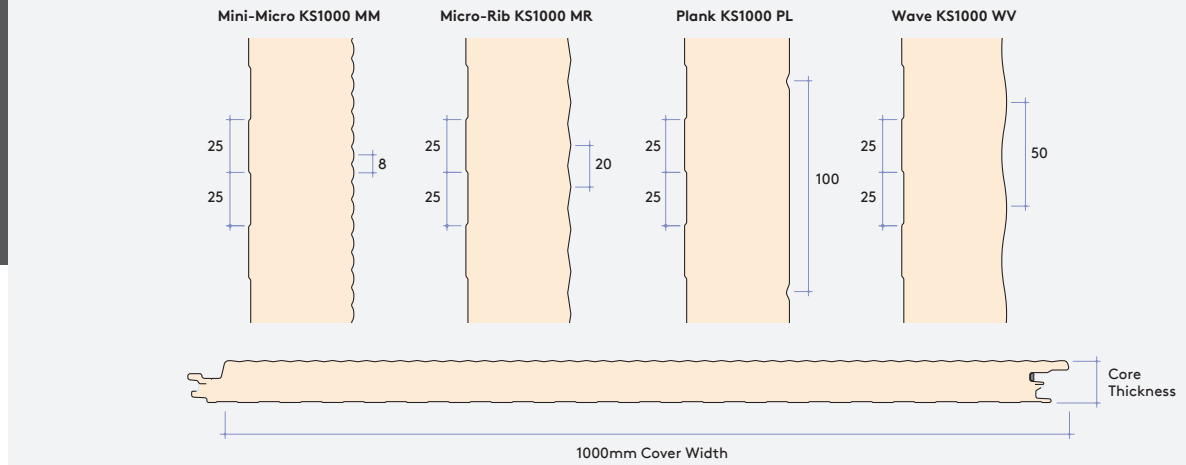
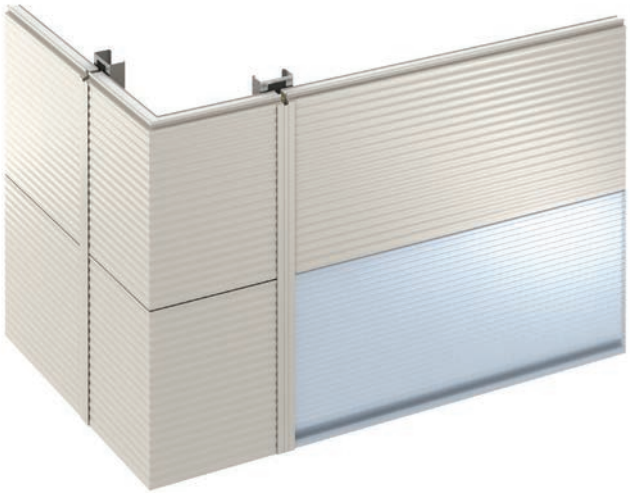
Insulated Roof
& Wall Panels

Architectural Wall Panels (KS1000 AWP) Data Sheet

Product overview

Available in a range of locally manufactured profiles and three alternative colour palettes, Kingspan's architectural wall panels combine aesthetic appeal with performance. Specifically engineered joint details ensure an absolute weather tight building envelope.





Panel Properties

Core Thickness (mm)	50	80	100	140
Weight kg/m² 0.5mm Ext. Steel / 0.4 Int. Steel	11.2	12.4	13.2	14.8

Application

Kingspan architectural wall panel systems are suitable for most building applications as an external façade element in either horizontal or vertical applications. A choice of exterior and interior finishes caters for a range of colours and coatings in standard and high humidity environments.

Insulation Core

The core of the KS1000 AWP panel is an environmentally sustainable ECOsafe and FIREsafe Polyisocyanurate (PIR) insulation which is not-deleterious with zero Ozone Depletion Potential. The rigid PIR insulation is closed cell and CFC/HCFC-free.

The core is auto adhesively bonded to the external and internal faces during manufacture providing strength and rigidity to the panels.

Thermal Performance

Declared Thermal Conductivity (λValue) 0.022 W/m.K @23°C

Panel Nominal Thickness (mm)	Total R-Value (m²K/W)	
	Heat Flow Out (Winter)	Heat Flow In (Summer)
50	2.50	2.31
80	4.01	3.70
100	4.98	4.59
140	6.92	6.38

The R-Values shown are Total R-Values for the building element as required by the Energy Provisions of the National Construction Code, calculated in accordance with AS/NZS 4859.2 2018. Architectural Wall Panel is manufactueed, tested and packaged in conformance with AS/NZS 4859.1 :2018

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Declared Thermal Performance

Declared Thermal Conductivity (λValue) 0.022 W/m.K @23°C

Panel Nominal Thickness (mm)	Product R-Value (m^2K/W) at 23°C	Product U-Value (W/m^2K) at 23°C
50	2.24	0.45
80	3.68	0.27
100	4.61	0.22
140	6.47	0.15

Declared Product R-Value is calculated in accordance with AS/NZS 4859.1:2018 as required for compliance to the National Construction Code 2019.

Fire Performance

Kingspan systems are widely recognised by investors, property insurers, designers and constructors for their superior fire performance and reducing fire risk. Architectural Wall Panel is tested and demonstrates compliance to all relevant Australian Standards.

AS5113 Classified Kingspan Insulated Panel Solutions	
Tested Build-up	140mm thick PIR Insulated Architectural wall panel Light Weight Steel Frame No lining / No Cavity Barriers Used
Test Report	BS 8414-2:2015 – P109234-1000
Classification Report	JV18-00218

BS8414 Tested System	
Tested Build-up	150mm thick PIR Insulated Evolution Vertical hot rolled hollow sections. No lining / No Cavity Barriers Used
Test Report	BS 8414-2:2005 – 293939
Classification Report	BR135:2013 Annex B – 289585

Kingspan products have an extensive fire testing background, which covers both insurance and regulatory areas.

When tested to AS/NZS 1530.3 for fire hazards, Kingspan panels achieved the fire hazard results as outlined in the below table.

Ignitability Index	0
Spread of Flame Index (SFI)	0
Heat Evolved Index	0
Smoke Development Index (SDI)	2

The Kingspan Architectural Wall Panel meets the requirements of the BCA Specification C1.10 AS 5637.1 as a Group 2 product, when tested to ISO 9705.

When tested to AS1530.4 Kingspan panels achieved the following Fire Resistance Level (FRL) results:

Thickness (mm)	FRL
80	-/60/28
100	-/132/28

Installation as outlined in the firewall model specifications.

FM Approval

Kingspan Architectural Wall (KS1000 AWP) systems are available with FM Global FM Approved Unlimited Height and FM Global 4881 App 1 Exterior Wall System Certifications.

Acoustic Performance

For a sound transmission reduction, Kingspan panels have a weighted sound reduction index (SRI) of RW =24-26 depending on panel thickness. For specific acoustic solutions contact Kingspan Technical Services.

Frequency (Hz)	SRI (dB)
63	13
125	17
250	21
500	26
1000	26
2000	26
4000	42
8000	52
Rw	24

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Product Tolerances

Length	±5mm
Width	±2mm
Thickness	±2mm
Thickness	±3mm
Squareness	±2mm

Available Lengths

Standard Lengths	2.0m –13.7m
Longer Lengths*	13.7m –16.1m
Shorter Lengths*	0.5m –1.99m
Transported by Rail	12.0m
Export of Australia	11.8m

Notes: * Additional costs and transport restrictions will apply for non–standard lengths.

Environmental

Kingspan has undertaken a Life Cycle Assessment of the KS1000 AWP, and have published an Environmental Product Declaration (EPD) on their performance. The results document that the Architectural Wall Panels are listed as a Type 3 Ecolabel with the Australian EPD Programme.

Biological

Kingspan insulated wall panels are normally immune to attack from mould, fungi, mildew, and vermin. No urea formaldehyde is used in the construction, and the panels are not considered deleterious to health.

Quality & Durability

Kingspan KS1000 AWP panels are manufactured from the highest quality materials, using state of the art production equipment to rigorous quality standards, ensuring long-term reliability and service life. The manufacturing plant where the products are made is fully compliant with ISO 9001(Quality), ISO 14001(Environmental) and OHSAS 18001 (Health and Safety).

Seals

All panel joints have a factory applied weather seal fitted into the panel groove to automatically seal the joint between panels.

Cyclonic Applications

A significant part of the Australian coastline is deemed to be in a cyclonic region. As a result of this Kingspan have carried testing out on the KS1000 AWP in accordance with the requirements of the BCA B1.2 for low-high-low performance requirements.

For further details please contact Kingspan Technical Services.

Site Installation Procedure

Site assembly instructions are available from Kingspan Technical Services. Kingspan recommend that the appointed contractor attend the appropriate product installation training course prior to installation, which is provided by Kingspan Field Services.

Materials

Exterior Weather Sheet

Substrate to be minimum 0.5mm thick steel coated steel to AS 1397.

Internal Liner Sheet

Substrate to be minimum 0.4mm thick steel coated steel to AS 1397.

- CLEANsafe15 – The coating has been developed for use as the internal lining of insulated panels. Standard colour is “bright white” with an easily cleaned surface.
- AQUAsafe – The Kingspan AQUAsafe range has been specifically developed for applications that require long term corrosion resistance and durability, in facilities such as washrooms/fabric manufacturing, agricultural and livestock facilities.
- AQUAsafe55 – The Kingspan AQUAsafe55 range has been specially developed for swimming pools and leisure centres that require long term corrosion resistance and durability.
- Other finishes are available on a project specific bases.

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Kingspan

Accreditations

ADVANCED CERTIFICATION ISO 9001:2015

ADVANCED CERTIFICATION ISO 14001:2015

ADVANCED CERTIFICATION OHSAS 18001:2007

EPD® AUSTRALASIA S-P-00847

Green Building Council Australia Member 2020–2021

FM APPROVED

FPA AUSTRALIA GOLD MEMBER Fire Protection Association Australia

Western Australian Institute of Sport

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Spans

Span capability of composite systems can depend on a number of external factors. The following table is based on medium colour panels. For darker colours contact Kingspan Technical Services.

NOTES:

1. The published span table is calculated using methods described in BS EN 14509.2013, taking imposed load and temperature into account. Values are assessed for compliance with the loading requirements of AS/NZS 1170.0:2002, AS/NZS 1170.1:2002 and AS/NZS 1170.2:2011.
2. Uniform distributed load given in the span table refers to the wind load acting on the panel.
3. Values have been calculated for medium coloured panels.
4. The serviceability limit state is defined by local buckling, bending or crushing failure at an intermediate support or the exceedance of a specified deflection limit.
5. Deflection limit for pressure and suction loading is L/100.
6. The allowable steelwork tolerance between bearing planes of adjacent supports is ± 5 mm.
7. The wind suction load resisted by the panel is also dependant on the number and type of fasteners used, and the supporting element. For further information contact Kingspan Technical Services.
8. Span table values have been calculated based on a support width of 60 mm.

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Span Table – External Sheet 0.5mm Steel/Internal Sheet 0.4mm

Single Span Condition

Panel Thickness mm	Load Type	Span, L (m)										
		2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
		Uniformly distributed loads (kN/m²)										
		Ultimate Limit State										
50	Pressure	4.45	3.56	2.97	2.42							
	Suction	3.74	2.39	1.66	1.22							
80	Pressure	7.04	5.63	4.69	3.68	2.82	2.23	1.80				
	Suction	6.03	3.86	2.68	1.97	1.51	1.19	0.96				
100	Pressure	8.70	6.96	5.80	4.46	3.42	2.70	2.19	1.81	1.52	1.29	
	Suction	7.59	4.86	3.37	2.48	1.90	1.50	1.12	1.00	0.84	0.72	
140	Pressure	8.84	7.07	5.89	5.05	4.41	3.49	2.83	2.34	1.96	1.67	1.44
	Suction	8.84	6.85	4.76	3.49	2.68	2.11	1.71	1.42	1.19	1.01	0.87
		Serviceability Limit State										
50	Pressure	3.80	2.23	1.49	0.99							
	Suction	3.26	1.90	1.15	0.65							
80	Pressure	7.10	4.69	3.22	2.27	1.64	1.22	0.92				
	Suction	6.50	4.19	2.79	1.92	1.35	0.96	0.70				
100	Pressure	8.97	6.15	4.36	3.17	2.35	1.78	1.37	1.07	0.85	0.68	
	Suction	8.37	5.63	3.91	2.78	2.02	1.49	1.12	0.85	0.66	0.50	
140	Pressure	11.40	8.24	6.14	4.68	3.62	2.85	2.27	1.82	1.48	1.22	1.01
	Suction	10.87	7.75	5.70	4.28	3.27	2.53	1.98	1.57	1.26	1.01	0.82

Double Span Condition

Panel Thickness mm	Load Type	Span, L (m)										
		2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
		Uniformly distributed loads (kN/m²)										
		Ultimate Limit State										
50	Pressure	4.45	3.56	2.97	2.42	1.86						
	Suction	3.74	2.39	1.66	1.22	0.94						
80	Pressure	7.04	5.63	4.69	3.68	2.82	2.23	1.80	1.49			
	Suction	6.03	3.86	2.68	1.97	1.51	1.19	0.96	0.80			
100	Pressure	8.70	6.96	5.80	4.46	3.42	2.70	2.19	1.81	1.52		
	Suction	7.59	4.86	3.37	2.48	1.90	1.50	1.21	1.00	0.84		
140	Pressure	8.84	7.07	5.89	5.05	4.41	3.49	2.83	2.34	1.96	1.67	1.44
	Suction	8.84	6.85	4.76	3.49	2.68	2.11	1.71	1.42	1.19	1.01	0.87
		Serviceability Limit State										
50	Pressure	3.41	1.91	1.22	0.85	0.63						
	Suction	3.85	2.80	1.67	1.10	0.78						
80	Pressure	5.77	3.58	2.19	1.48	1.07	0.81	0.64	0.51			
	Suction	5.47	4.31	3.30	2.16	1.48	1.07	0.81	0.63			
100	Pressure	6.31	4.94	3.02	2.00	1.42	1.06	0.83	0.66	0.54		
	Suction	5.98	4.69	3.87	3.00	2.07	1.47	1.09	0.84	0.67		
140	Pressure	6.15	4.80	3.92	3.32	2.30	1.67	1.27	1.00	0.81	0.67	0.56
	Suction	5.80	4.52	3.70	3.13	2.72	2.41	1.93	1.45	1.12	0.90	0.73